The November Night Sky

**Takurua Sirius**, the brightest true star, rises a little south of due east - by the end of the month it is up at sunset. **Autahi Canopus**, the second-brightest star, is in the southeast. Both stars twinkle like diamonds as the air disperses their white light.

**Tariao Jupiter** is the 'evening star', rising soon after sunset, and Saturn appears as the sky darkens**. Mars** appears in the late evening, orange-red and brighter than Sirius (but dimmer than Jupiter). The Moon will pass by Saturn, Jupiter and then Mars over the 1st two weeks of November

Left of Sirius is the constellation of **Orion**, with 'The Pot' at its centre. **Puanga Rigel**, a bluish supergiant star, is directly above the line of three stars **Te Kakau** in the pot; **Betelgeuse**, a red-giant star, is straight below. Left again is orange **Te Kokota** **Aldebaran,** part of the constellation of **Taurus** the bull. Still further left is the **Matariki** star cluster, also called the **Pleiades**. Six stars are visible to most eyes, ddozens are seen in binoculars. The cluster is 440 light years (LY) away and around 100 million years old.

**Te Mangoroa the Milky Way** is low in the sky, visible around the horizon spread from the northwest, through south into the eastern sky. The broadest, brightest part is in **Sagittarius**, to the right of the Scorpion's sting.

Low in the south are the Pointers, Beta and **Hakihea Alpha Centauri**, and **Crux Taki-o-Autahi** the Southern Cross. In some Māori star lore the bright southern Milky Way makes the canoe of Maui with Crux being the canoe's anchor hanging off the side. In this picture the Scorpion's tail can be the canoe's prow and the Clouds of Magellan are the sails.

The Clouds of Magellan, (**LMC** and **SMC**), high in the southern sky, are two small galaxies. They are easily seen by eye on a dark moonless night. The globular star cluster 47 Tucanae looks like a slightly fuzzy star near the top-right edge of the SMC.

Very low in the north is the **Andromeda Galaxy**, easily seen in binoculars in a dark sky and faintly visible to the eye. It appears as a spindle of light. It is similar to our galaxy and nearly three million light years away.

A **total eclipse of the Moon** occurs on the night of the 8-9th. At 9:02 pm the Moon begins to enter the outer part of Earth's shadow, the penumbra, but It won't show much darkening till it starts to enter the inner shadow, the umbra, at 10:09. By 11:17 the Moon will be completely in the umbra and depending on conditions may glow red, a 'blood Moon'. The Moon will be at its darkest at midnight. It begins to exit the umbra at 12:42 and is fully clear of it by 1:49. It moves out of the penumbra at 2:56 a.m.

**MERCURY & VENUS:** too close to the Sun for us to see.

**MARS:** Mars rises in the north late in the evening and remains visible until fading into dawn’s gathering light. The Moon will be near Mars on the night of 11-12th. Although bright, Mars is small in a telescope, appearing the same size as the globe of Saturn.

**JUPITER:** This 'evening star', appears north of overhead soon after sunset. It is ideally placed for telescope viewing, especially in the later hours of the evening. The disk of Jupiter can be seen in binoculars along with one or two of its big moons close by. Any telescope will show all four moons, the ones discovered by Galileo in 1610. The Moon will be near Jupiter on the 4th and 5th.

**SATURN:** Saturn is high in the northwest evening sky & is also well placed for telescope viewing. The ring of Saturn is visible in a small telescope along with Saturn's biggest moon Titan, close to the planet. The Moon will be near Saturn on the 2nd

Sources

Alan Gilmore, University of Canterbury's Mt John Observatory, Lake Tekapo.

<https://www.stardome.org.nz/star-charts--sky-spotter>